Review 7 relation of $f$, $f'$, $f''$

If $f'>0$, $f$ increases

$f'<0$, $f$ decreases — max at $x=\ldots$, max is $y=\ldots$

$f'$ changes: $+\,0\,-$ $f$ has a max (pointy max)

$f'$ changes: $-\,0\,+$ $f$ has a min (pointy min)

$f'$ doesn't change: $+\,0\,+$ or $-\,0\,-$ flat point

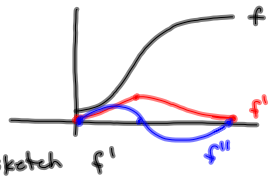
$f''>0$, $f$ concave up

$f''<0$, $f$ concave down

$f$ has an inflection pt. $f''$ changes sign

Feb 29-10:06 AM

Ex 1



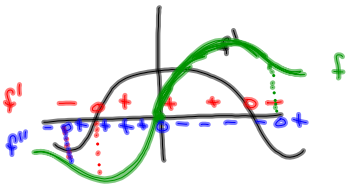

a) sketch $f'$

b) sketch $f''$

c) $\lim_{x\to\infty} f' = ?\ 0$

Feb 29-10:18 AM

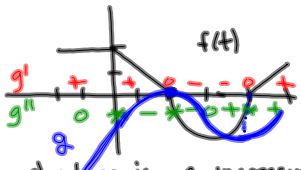
Ex 2 If $f' = \cos(x^2)$ and $f(0)=0$ sketch a possible graph of $f$ on $[-2,2]$.




calc ok

Feb 29-10:24 AM

Ex 3. $g(x) = \int_2^x f(t)\,dt$ $g' = f$




a) where is $g$ increasing? Decreasing? $[-2,2] \cup [4,5]$ $\subset [2,4]$

b) where is $g$ concave up? Concave down? $(3,4)\cup(4,5)$ $(0,2)\cup(2,3)$

c) where does $g$ have inflection pts? $x=3$

d) sketch $g$

Feb 29-10:39 AM